

#### ABSTRACT OF THE DISCLOSURE

An SiC film, a porous silica film as an interlayer dielectric film, another SiC film, an SiO<sub>2</sub> film, an SiN film, and an antireflection film are formed in this order on an interlayer dielectric film and Cu film. The antireflection film is coated with an organic photosensitive ArF resist, and the resist is exposed and developed to form a resist mask in which a wiring trench pattern is formed. A trench is then formed in the porous silica film, the latter SiC film, the SiO<sub>2</sub> film, and the SiN film. Plasma processing using a hydrogen-containing gas is performed on the side surfaces of the porous silica film, thereby forming a modified layer. The exposed portion of the former SiC film is etched away to allow the trench to reach the Cu film.